

AMENDMENTS TO THE CLAIMS

1-9. (Canceled)

10. (Withdrawn - Currently Amended) The endoscope system according to ~~claim 9~~
claim 15,

wherein the energy is determined based on differences in pixel value between the plurality of feature regions included in each of two temporally successive images.

11. (Withdrawn - Currently Amended) The endoscope system according to ~~claim 9~~
claim 15,

wherein the energy is determined based on differences in area between triangular patches obtained by connecting the plurality of feature regions included in each of two temporally successive images.

12. (Withdrawn - Currently Amended) The endoscope system according to ~~claim 9~~
claim 15,

wherein the energy is determined based on a difference between (i) a coordinate obtained by correcting, based on a movement component of said omnidirectional camera, a coordinate of a great circle which appears in an image after a first image taken by said omnidirectional camera is transformed in a spherical coordinate system with its center at a viewpoint of said omnidirectional camera, and (ii) a coordinate of a great circle which appears in an image after a second image temporally successive to the first image and taken by said omnidirectional camera is transformed in the spherical coordinate system.

13. (Withdrawn - Currently Amended) The endoscope system according to ~~claim 9~~
claim 15,

wherein the energy is determined based on a degree of deviation of a plurality of control points, in a second image taken by said omnidirectional camera, which respectively correspond to a plurality of control points selected from a first image taken by said omnidirectional camera.

14. (Currently Amended) The endoscope system according to ~~claim 9~~ claim 15,

wherein the energy is determined based on a degree of deviation between a plurality of control points selected from a first image taken by said omnidirectional camera and a plurality of control points, in a second image taken by said omnidirectional camera, which respectively correspond to the plurality of control points selected from the first image.

15. (Currently Amended) An endoscope system for taking images of an inside of an object, comprising:

an omnidirectional camera operable to take a plurality of images of the inside of the object in a living body, which is capable of motion; and

an image generation unit operable to generate a panoramic image of the inside of the object by performing a video mosaicking process, a motion correction process, and an image modification process through energy minimization on the plurality of images obtained by said omnidirectional camera, said processes being intended for pasting the images, estimating camera motion, correcting previously definable motion in the living body, and correcting previously indefinable internal deformation in the living body,

wherein said image generation unit is operable to generate the panoramic image such that

the panoramic image has a fixed visual angle with respect to each of directions perpendicular to a traveling direction of said omnidirectional camera, by performing the video mosaicking process on the plurality of images obtained by said omnidirectional camera,

wherein said image generation unit includes:

a feature region cutout unit operable to cut out a plurality of feature regions having a predetermined size from each of the plurality of images obtained by said omnidirectional camera; and

a panoramic image generation unit operable to define energy based on the plurality of feature regions included in each of the plurality of images, associate the plurality of feature regions between the plurality of images such that the energy is minimized, and generate a panoramic image of the inside of the object based on the association result, and

~~The endoscope system according to claim 9,~~

wherein the plurality of feature regions are regions which are included in the plurality of regions having the predetermined size included in each of the images, and in which a squared sum of derivatives of pixel values is greater than a predetermined threshold value.

16. (Cancelled)

17. (Currently Amended) The endoscope system according to ~~claim 4~~claim 15,

wherein said omnidirectional camera is mounted on a tip of a probe that is to be inserted into a digestive organ.

18. (Withdrawn - Currently Amended) The endoscope system according to ~~claim 4~~

claim 15,

wherein said omnidirectional camera is enclosed in a capsule that can be swallowed by a human or an animal.

19. (Previously Presented) An endoscope system for taking images of an inside of an object, comprising:

a camera operable to take a plurality of images of the inside of the object in a living body, which is capable of motion; and

an image generation unit operable to generate a panoramic image of the inside of the object by performing a video mosaicking process, a motion correction process, and an image modification process through energy minimization on the plurality of images obtained by said camera, said processes being intended for pasting the images, estimating camera motion, correcting previously definable motion in the living body, and correcting previously indefinable internal deformation in the living body,

wherein said image generation unit includes:

a feature region cutout unit operable to cut out a plurality of features regions having a predetermined size from each of the plurality of images obtained by said camera; and

a panoramic image generation unit operable to define energy based on the plurality of feature regions included in each of the plurality of images, associate the plurality of feature regions between the plurality of images such that the energy is minimized, and generate a panoramic image of the inside of the object based on the association result, wherein

the plurality of feature regions are regions which are included in the plurality of regions having the predetermined size included in each of the images, and in which a squared sum of derivatives of pixel values is greater than a predetermined threshold value.